

OBSERVATIONS

REGARDING

MEDICAL EDUCATION;

IN A LETTER,

ADDRESSED TO THE

PRESIDENT OF THE ROYAL COLLEGE OF SURGEONS

BY

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OBSERVATIONS,

8^c.

“ Quâ ipse verisimilitudine dubiis in rebus cognitioneque dignissimis ducor, quam plurimos velle certos facere, ut aut reprehensione aliorum me corrigere, aut comprobatione confirmare possim.”—P. BEMBI epist.

SIR,

I beg leave respectfully to propose for your consideration the following pages, which are written in some experience of the present system of Medical Education, and after frequent and earnest thought on the possibility and means of amending it.

The importance of the subject—whether in regard to the well-being and social rank of the profession, or in its larger implication of domestic interests, or in its bearing on the moral economy of the country—can hardly be overrated; and I venture to hope that this, its acknowledged gravity, may excuse my freedom in addressing you, and may procure me the indulgent attention, for which I am incompetent to advance any personal claims.

A conviction of need for sounder, more extended, and more vigilant teaching, than belongs to the existing system, has long and deeply impressed me; and there are circumstances in the present day, which give to that need, as I believe, a peculiar and immediate urgency.

For, on the one hand, we learn that it is in contemplation with Her Majesty's government to modify by legislative interference the form and constitution of our professional corporations; and there are many who venture, as they anticipate a nearer adoption and permanent supervision of these by the state, to predict herein both means and pledge for eliciting consummate excellence, and for obtaining increased social esteem. Yet,—welcome as the measures alluded to might be in giving harmony and co-ordination to classes and protection to the whole, and in affording to the Profession the security of impartial government; and pregnant with good as they might be, in the mere fact of absorbing Medical polity into the common administration of the country, and in so staying a source of hurtful distractions, and quieting infinite dissonance,—it would be vain to imagine, that the extrinsic agency of legislation can be a substitute for the will and the energy of self-bettering, in which every efficient reform of the Profession must arise. Its inward and particular life, as illustrated in usefulness to the community, in actuation by the spirit—and loyalty to the interests of science, in contempt for meanness, ostentation, and quackery, in moral trustworthiness, (if, indeed, such qualities may be attributed to a class)—this, its deeper and vital constitution, eludes legislative enactment. The character and instructedness of its members can only be regulated by a spontaneous care of the Profession studiously to assimilate each advancing generation to that high standard of excellence, which it should recognise as its own. By no possible measure can government do more for the art and science of healing than *afford the conditions* under which they may best prosper: it can supply to them an atmosphere of facility, but not the principle of growth; it can fashion from without, but must be answered by energy of expansion from within; it can create an organism, whose continuance and further increase must be acts of an independent vitality. And

therefore, and in order that the Profession (as represented by its educating and examining bodies) may most effectively co-operate with the expected modelling acts of the state, it seems to me that the present time is singularly appropriate for scrutinising our system of medical education, and the requisites for lawful practice.

Nor, on the other hand, has the subject less interest, or the need less evidence, to those who meditate on the numbers, diffusion, and personal influence of the class affected,—on the hundreds who yearly swarm from the metropolis, claiming immense responsibility—trusts of confidence, of happiness, and of life. Indeed, Sir, there are considerations in this respect, making the matured education of medical practitioners, apart from the question of their mere technical proficiency, a subject of deep importance. For of those especially, who are distributed in villages and country towns, each, bespeaking respect by his social position, and winning love by the familiar offices of kindness, may become an agent, an example, a living nucleus of civilisation and moral good. It is no mean succour that such men may contribute to the well-being of their district, and to the interests of society, if sound education have given them the ability and the wish of usefulness. Nor can an education so tending, be disregarded, or esteemed otherwise than of high moment, if we turn from considering this influence, to contemplate the condition of those on whom it might be exerted.

The first circumstance to which I would solicit your attention, is the want of *definite preliminary education*; and, in expressing an opinion that the majority of students, who frequent our hospitals and dissecting-rooms, are absolutely unprepared for these theatres of study, I do not merely mean that they are without extra-technical acquirements and general information, but am anxious to urge the existence of a much deeper evil, in the fact that their minds are not only unfurnished, but unformed. They have in many

cases been transferred from the rote-learning of a school-boy's life to the very centre of an unintelligible world, with no habit of thought or method in study, ignorant of the laws and nature of evidence, incapable of explaining the grounds of their firmest convictions; they are bewildered with facts they cannot group, with analogies they cannot apprehend, with reasonings they cannot follow. Their early immersion in technical studies not only renders these less available, but of necessity likewise arrests the natural development of their intellect; stunting its growth or deforming its proportions, just as the hand-labour of the factory matures a partial dexterity at the risk of distortion or dwarfishness. It must indeed be admitted, that many have acquired sound judgment and enlightened practice, in spite of these disadvantages of education; but I anticipate no denial, when I assert, that the distribution of able practitioners might be far more uniform than it is, and that the average of acquirements and character in the profession would assuredly rise, under a better considered system of teaching than the present one.

It has been said of travellers in foreign countries, that "a man must carry knowledge with him, if he would bring home knowledge;" and such is no less the case with those, who would first explore the labyrinth of science. In such measure as they are disciplined in that which constitutes the common ground of all sciences, will each particular one be of easy acquirement: in such measure as they are pre-informed in the sciences fundamental to their own, will their conquest over *its* difficulties be facilitated, and the security of their course in *it* be assured; its strangeness will become intelligible, and its novelty almost familiar.

The lecturer is obliged by many circumstances to presuppose a certain amount of preparation in his hearers; yet, in how few instances is this assumption warranted! If, for example, we examine the case of a medical student in

the first week of his first winter session, we find him attending lectures, which, for their understanding require various preliminary knowledge. How can he follow with interest or with profit a lecture on the *Materia Medica*? names of classes and orders are invoked, which till the ensuing summer must be gibberish to him. How can he appreciate those philosophical references to analogous structure and compensative arrangement, that so abundantly illustrate physiology, when uninitiated in the general history of the animal kingdom, and in the principles of its classification? How can he compass the rigid detail of descriptive anatomy, without a more than vulgar acquaintance with mathematical nomenclature? How can the exquisite contrivances of the skeleton be otherwise than a conundrum to him, unless he have prepared himself with a study of the simple mechanical appliances? To what effect can he contemplate the organs of sense, the great inlets of experience, in their mediation between man's mind and outward nature, unless he be aided by previous instruction in the laws and limits of the physical world? I am prepared to admit that the lecturer, if he be of considerable resources, may by his personal exertions compensate, in some degree, for the evils of the system under which he labours, and, by a series of justifiable digressions, may draw within the sphere of his teaching all the kindred knowledge, which bears on the proper subject of the course; yet I cannot doubt that this mode of conveying instruction is, in its most successful issue, far less profitable than one would be, in which he might appeal to knowledge already digested, methodised, and incorporated with the understanding of his hearers. While, then, I believe that the epoch, at which purely professional studies begin, might with immense advantage be deferred till the candidate have reached at least the age of eighteen years, I would also venture to suggest that the period so gained should be given to a more

ripening, and yet more special education, than belongs to ordinary schools.

The training of this period should be *transitional*; so that while it would serve to fix, and give form to, the acquirements of boyhood, certain additional studies might be engrafted on these, with a care to anticipate the future career of the student, and to prepare him for a right valuing and apprehension of technical pursuits. In this view I would wish to see him instructed in the elementary sciences of nature, —zoology, botany, and physics: he should learn the principles on which these kingdoms in nature are constituted and classified; should survey their boundaries, ascertain their points of contact, and acquire an early comprehension of their mutual relations. There can be no doubt, that it lies within the authority of the professional examining bodies, to require from candidates any amount of instruction in these matters, which to them may seem sufficient. But I believe the most effectual manner in which the requisition of such attainments could be enforced, and that too the one best calculated to secure the end of preparation for technical studies, would be for the teachers in medical schools unreservedly to reject from admission to their classes those who could not pass a satisfactory preliminary examination. With your permission, Sir, I will more particularly specify what I conceive might be the scope and character of this examination.

(1.) It might require such a general acquaintance with natural history, with the principles of classification, with the forces which act upon matter, with geometrical nomenclature and rudimentary mechanics, as would best be defined in making particular text-books, or chapters, the criteria in these subjects.*

* It would be superfluous to enumerate such works: they are, for the subjects above mentioned, both plentiful and good, each school commonly possessing or re-

(2.) Since the student, from the moment of entering on professional studies, should be able to co-operate with his teacher's effort to instruct him, and in some degree to induct, analyse, and arbitrate for himself, as well as receive the reasonings of others, I cannot but think the examination should test the education of his judgment and require familiarity with the laws of evidence, the principles of logic, and the so-called inductive process. The object might be variously fulfilled: either logic, in its dry form of abstract rules, might be made the subject of examination, or the logical accuracy of the candidate's replies to general questions might be criticised, or some work on the exercise of the judgment in scientific investigation (as Sir John Herschell's well-known Discourse, or a part of the *Novum Organon*) might be made a text-book and criterion.

Thus far, by reason of the obviously practical bearing of these matters on the subsequent studies of the candidate, the law of requisition might well be absolute, in its certainty of facilitating the student's future career, no less than in promising high ultimate competency; nor should I fear its repelling any whose services could avail the public, or whose ability could enhance the character of the profession.

The practical applicability of the above-mentioned knowledge might abundantly justify its compulsory requisition, as the *minimum* of preparation, with which a candidate should be permitted to commence his exclusively technical studies; but the same necessity does not involve mathematical or classical attainments. Highly as I value these,—

commending a particular series. A considerable part of the subjects here suggested for requisition, previously to technical study, has long entered into the medical curricula, as regulated by the examining bodies. That they should be insisted on, as a *separate* and *preparatory* discipline, I think very important; not only for the reasons, which I have sought to develop above,—but likewise in order to diminish the perplexing variety of pursuit, which the young student now experiences, and to ensure, for the acquirement of these branches of natural science, the leisure commensurate with their value.

considering the former, apart from its application to physics, as the best *gymnasium* of the judgment; and the latter as eminently developing the taste toward that consummation, in which it becomes the half-sister of morality,—I cannot view either of them as having any sufficiently special relation to the pursuits of a medical man to warrant an unconditional demand for them. Attaching, nevertheless, a high price to their possession, I doubt not that emulation would be excited, and much excellence evolved, by inviting voluntary competition in each subject, and assigning a premium to distinguished merit; nor can I conceive any kind of reward better suited to the object, than that of admission to the subsequent courses of technical instruction at a reduced entrance-fee.

Thus prepared and thus tested in the wider field of general knowledge, the student at eighteen years of age would yield himself to the circumscription of technical pursuits, without bondage to them, or blindness to others; he would have seen the Natural Sciences, as though in bird's-eye view, charted beneath him; would have learned their points of distinction and of blending, and have remarked the habits of traffic and communion by which, while cultivating his own particular territory, he must be interested in the welfare of each neighbouring domain of science; questions would have suggested themselves, in accordance with the special tendency of his transitional studies, to which each ensuing step should give the half-anticipated, and therefore impressive, answer.*

* *Prudens interrogatio quasi dimidium scientiæ*: to act on this suggestion of our great normal teacher is the secret of success in communicating knowledge: information must be given as in answer to a previously excited curiosity, and the doubt must have been aroused, before its solution be proffered. This seems to me particularly the case in regard of oral instruction, as though the chief skill of teaching a science consisted in so arranging the matter, that the direct announcement of any important fact, law, or theory, should be preceded by a demonstration of its necessity for explaining or combining, what had gone before.

In now proceeding to offer some suggestions on the instruction which is exclusively technical, I shall venture to criticise the present system, as to both scheme of study and mode of teaching.

1. As to the *scheme of study*.

Efficient scientific instruction may be tested by the secure and confident progress, which is its result; the memory of the student, the logical coherence of the subject, and the teacher's habits of retrospection, preclude the wearisome necessity of formal repetition; the recollections of the past blend themselves with anticipations of the future, more firmly than by any artifice of rote learning. If the labour of teaching have been successful, it can scarcely be necessary to iterate and re-iterate, in a second and a third year, the self-same lessons as attained their object in a first one; and conversely, if this need exist, then must the system, which suffers it, be inefficient and require correction. That need does exist for maturer information on many subjects, than a six months' season of teaching can convey,—who will doubt? but, that a science can be communicated by the same repeated rehearsals as would best enforce an unintelligible formula—who will believe?

Knowledge is acquired with various facility, and with more or less claim on the mere memory, according to the coherence of its parts. Where (as in learning the numerals of a strange language, or the *abracadabra* of an amulet)

Thus, to give a familiar instance, how better could the student be led from the facts of universal gravitation to the law which gives them unity, than by being transferred to the position and point of view of Newton's contemporaries, to experience *their* questionings before receiving *his* answer? Indeed, I can little doubt, that in science, as elsewhere, history may fulfil the high function of "teaching by example," and that the philosophical student may do well and wisely—with a view no less to engraft knowledge, than to feed enthusiasm—in tracing the recorded footsteps of those, his forerunners, who by exploit and achievement, have confirmed the empire or extended the horizon of Science.

the mind perceives neither connexion, nor meaning, it appropriates the knowledge by mere acts of repetition, which impress the senses and the sensuous memory, and survive there by no firmer tenure on the intellect, than is possessed by the note of a singing-bird, or the perfume of a flower. Far otherwise is it with the interpreted and consequent facts of science: requiring a sustained effort of the attention, they are learned only as they are understood; but, once learned, are known always, and may, by reflection, be brought from obscurity and disuse into vividness and application. Supposing a student, after adequate anatomical information, to have contemplated the circulation of the blood, even as Harvey taught it; now in respect of a final cause, as the means of universal nutrition, now in the empirical evidence of anatomy and experiment, now in the interpretation and unity of otherwise scattered facts:—or supposing him, in the guiding light of Schwann's eventful conception, to have traced the animal tissues through their growth to that single type, whence the unseen Artist diversely elaborates them;—or to have recognised the name, and labours, and genius of John Hunter as the symbol, synonyme, and germ, of all that most excellently distinguishes modern biology and therapeutics;—or, intelligently contrasting the chemistry of old with that of later years, to have marked how, in each department of dynamics and analysis, it has been dis-entombed from a catacomb of lifeless formulæ, and raised to the construction, and quickened to the fruitfulness, of science, by the few, swift, plastic master-touches of Faraday, of Dalton, and of Liebig;—I unhesitatingly affirm my conviction, that such knowledge, so acquired, can no more be rent from the intellect, with which it has become inwoven and organised, than a perception of the great laws of Nature could have been extinguished in the minds of those, who first discovered and proclaimed them. Nor do I believe, that the systematic and formal repetitions alluded

to, have a merely useless character: I believe them to be absolutely prejudicial, and to substitute in the student's mind the habit and expediency of rote-learning, and *memoria technica*, and word-knowledge, for zealous inquiry, and sure understanding, and comprehensive appropriation.

Actuated by this opinion, and bearing in mind (together with the necessity of more than six months' discipline in certain kinds of knowledge) the unquestioned fact, that the ardour of pursuit in a science is commensurate with the sensible progress of intellectual mastery obtained therein, I would gladly see the present *repetitional* system give place to one, in which the more copious subjects might be extended over a longer period of *continuous and progressive* study. The means of accomplishing this object are such, as would readily harmonise with other modifications in the existing system of teaching, which I shall presently suggest; and I would now merely observe that a curriculum of study can only pretend to realise effectually the objects of education, when particular steps of scientific pursuit are assigned to definite periods of studentship, with strict provision for ascertaining, at various stages of the candidate's career, his actual attainments and competency, as the conditions of advancement.

The present scheme of instruction might moreover, I believe, be amended as regards the distribution of subjects in the various courses. Within the last few years a silent change has been admitted in the anatomico-physiological studies, and though there are still, I understand, some schools where the old arrangement prevails, the improvement is of such obvious convenience, that it can scarcely fail to be ultimately adopted by all.*

* The alteration referred to, is that of associating on the one hand, under the title of "descriptive and surgical anatomy," the *larger* anatomy of the body with its relations to the casualties and operations of practical surgery; and on the other, as "general anatomy and physiology," the *smaller*, the intimate struc-

Of the courses of lectures given on the “ Principles and Practice” of Medicine and of Surgery, each consists, or is supposed to consist, of two parts; an earlier one, including general pathology and therapeutics, and a latter, special one, pertaining to particular diseases. Some inconveniences belong to this arrangement; during the early part of the course, the pupils find their surgical and medical teachers either repeating or contradicting each other. Yet neither repetitions, which may perhaps give mutual enforcement, nor contradictions, which thought, inquiry, or experience may correct or explain, are in themselves so hurtful, as the indirect encouragement thus given to a belief, that the abrupt and unnatural (though convenient) distinctions between Surgery and Medicine reach even to a contrast of the principles on which they are based. If the common principles of medicine and surgery were differently disposed of, (as in a manner presently to be explained,) not only would more leisure be given for considering afterwards the specialities of these two great branches of the healing art, and such generalities as are proper to each, but the student would advance, as is ever desirable, from universal laws and principles to their detailed application.

General pathology (to the scope instanced in the first volume of Andral’s *Anatomie Pathologique*) may surely, in the present state of our knowledge, be best studied in its intimate relation to physiology;—an affinity which each year’s progress increasingly illustrates and confirms. So obviously natural is this union, and so desirable for the student, in behoof of his future studies, that even if general pathology were abundantly taught in connexion with the

ture of parts, with the laws of their growth and living functions. The useful tendency of this change would be most completely accomplished, and the latter course rendered both more philosophical and more practical, if it were made utterly to avoid distributive anatomy, (which it should suppose already learned,) and to include general pathology and the history of morbid products.

specialities of medicine and of surgery, its omission in the physiological course would yet seem little less than a disintegration of the subject.

General therapeutics (to the extent in which they form the common axioms of medical and surgical practice) are now professedly taught in conjunction with an account of the *Materia Medica*: but so unfit or inopportune an extension is given to this last, that the course, which might be of immense interest and value to the young student, frequently assumes in his view a complexion of wearisome dulness. It would indeed be far otherwise if the teacher were justified in supposing his audience pre-informed in botany and chemistry, and possessed of other means and opportunity for learning in detail the physical characters and compatibilities of drugs. He might (under such conditions of preliminary education as I have already considered) cease to dwell on botanical characters, to diagrammatise decompositions, and to explain the detail of pharmacy; and his instructions, relieved from this heterogeneous burthen, would rise to the dignity of a dissertation on the *resources* of medicine, in subordinate connexion with those *indications for treatment*, which the interpreted language of symptoms affords.

The student would thus be enabled, in his second year of technical occupation, to advance with confidence and profit toward the ultimate goal of his labours; for, having learned in general pathology, as it were, the dynamics of disordered life, and in general therapeutics the means of remedial counteraction, he is prepared for the more intricate problems which actual disease, in combination and irregularity—which practical medicine, in success and in failure, in boldness and in caution, in knowledge and in doubt, will afterwards and hourly present to him.

2. As regards the *mode of teaching*.

Observation has convinced me, that great and general

need is felt for some more familiar method, as a supplement to the single and universal one of lecturing. To illustrate general views, to produce a total effect, to combine details, to give, as it were, expression and saliency to portions of an almost completed design, and explicitly to trace long chains of hidden dependence; these are powers and privileges which appertain, perhaps exclusively, to the unbroken discourse of a skilful lecturer. Yet these same faculties (since they pre-suppose the possession of that more particular and detailed knowledge, to which they so eminently give combination, generality, and vividness) are, in the very fact of their especial excellence, ill-adapted for entirely fulfilling the office of instruction. Young men, first grappling with the difficulties of a new science, require much more assistance than the formal, unquestioned continuity of a lecture is competent to afford. Their entire apprehension of each article, as it is first taught them, should be ascertained by frequent familiar intercourse with the teacher, who may prove their information and solve their difficulties. In default of such opportunities, a few early unexplained obscurities cast their long and spreading shadows in the student's path; his knowledge, from being insecure, becomes mistrustful and inconsequent; his interest flags, and his industry soon asks "*cui bono.*"

For the inculcation of elementary science, lectures alone are certainly insufficient; they need admixture, in at least equal proportions, with indirect and catechetical teaching, as a provision to evoke and sustain the active attention of each individual mind; they require the assistance of judicious parallel reading, for the efficacy of which, again, not only the supervision and guidance of the teacher, but also his scrutiny and questioning are essential.

To instruct is not simply to declare: the transfusion of knowledge requires readiness for receiving: a spirit of

inquiry on the one side must anticipate explanation or statement on the other ; and the teacher cannot be too well certified of his pupil's entire apprehension.

The old and true adage, that all men are as children in what they do not understand, will at once excuse my quotation of the following lines, and furnish their application to the present matter : they are borrowed (with slight change) from Dr. Kay's excellent Observations on Infant Schools, and quite describe the mode of oral teaching which I conceive best suited to elementary instruction. " Its peculiarity is, that by a skilfully devised system of interrogation, the teacher discovers the limit of the pupil's knowledge, but avoids supplying him with information solely by direct didactic instruction. Having ascertained what the pupil does not know, he leads him, by a carefully planned succession of questions, as it were, to *infer* the truth ; and, in so not simply *conveying* it, but making its acquirement to depend on an accompanying exercise of the pupil's mind, he renders it impossible that anything can be learned by mere rote." *

Reference to two facts will, I think, place in a strong light the necessity for giving development to this method of teaching in our schools of medicine. The two facts are in contrast.

First, at the close of the appointed curriculum, anatomy is the best learned subject of the largest number of willing students ; and this from the obvious reason of the manner in which it is taught—the familiarity of tone, the alternate demonstration and questioning, the facility of constant appeal to its teachers, who, in all schools, have the largest share of personal intercourse with the pupils.

* Report from the Poor Law Commissioners on the training of pauper children. London, 1841. The extract might almost serve to describe many passages in the dialogues of the Socratic academy ; for the *genus argumentandi, quod per inductionem sumitur* (Cic. de Inv.) scarcely admits an excellence beyond those ancient patterns.

Secondly, the phenomenon of *grinding* powerfully illustrates a deficiency in the schools: for, while it is true that the majority of *the ground* are young men, who require *cramming* in order to obtain license of practice, and whose need for it is but the discrediting proof, that they have neglected other opportunities; it is likewise beyond doubt that many industrious, able, and well-disposed pupils share the same resort, not so much (if at all) to obtain direct instruction, as to have their attainments tested, “to see what they know,” and, by the discipline of familiar examinations, to acquire confidence and precision of reply.

The inconveniences and defects, which, as I believe them to exist, I have sought to demonstrate in our present scheme of professional study and in our ordinary method of instructing, appear inseparable from a system in which the earliest and the most advanced student fare in so many respects alike. If the neophyte in physiology, or in surgery, or in medicine, or in any other like science, be compelled to sit at lectures which are adapted to a two years’ pupilage, he may well require to hear them a second or a third time; but such a necessity argues little for the usefulness of the first course. Or, if elder students are obliged, by stringent regulations, to give bodily attendance at the teaching of elementary matters long since learned by them, it can scarcely be supposed that the hearing is profitable, or the necessity otherwise than irksome. If the teacher strive to combine, in a single six-months’ course, the early and the remoter studies of an extensive subject, (and such, with occasional deviations to one extreme or the other, is the usual practice with the sciences above-mentioned,) the result, in a greater or a less degree, must be hurry, with an evil train of omissions and abridgments, and the impossibility of testing by examination the success of his lectures, except in the most perfunctory manner.

These embarrassments would cease, and the sound educa-

tion of medical students would be, in my belief, otherwise and materially promoted, if each school were classed into an upper and a lower department with an appropriate distribution of studies. No principle better ensures the success of mental application, than that of never making a new step till the security of the last have been tested and approved; and I should think it expedient to apply this principle to the above-mentioned distinction, and nowise to suffer a student to advance beyond the junior department of his school, except on satisfactory evidence of his attainment in its studies.

It seems to me that the arrangement, I propose, would have the following advantages:

(1.) The pupil would complete his knowledge of the more extensive subjects, not, as at present, by repeated attendance on the same series of lectures, but by continuous and regulated progression, from the elementary to the intricate studies of the science.

(2.) For the junior school there might prevail a less formal tone of instruction, more frequent examinations, more encouragement and supervision of parallel reading, and of other private study, than belong to the present system.

(3.) A more convenient distribution of subjects would be possible, since it might differ in the two departments; for, as the younger student has to study medicine in its *principles*, and to contemplate it as a *science*, while the elder student learns it in its *practice*, in order to apply it as an *art*,—the antithesis of their pursuits might well reach even to the spirit and intention, in which they both cultivate a common ground.*

* Thus, for the junior, THERAPEUTICS would be studied *generally*, as the science, which is one—and in the principles, which are common—for all the denominations of the healing art; while, contrariwise, for the senior, the science would be viewed only in its branchings and specialities, as embodied in the various forms of medical, surgical, and obstetrical practice. Thus again, in early pupilage, BIOLOGY is to be studied, as the science of a power *common to health and*

4. It would solve a difficulty which is of annual recurrence to every school of the metropolis ; that, I mean, of arranging the hours for various lectures ; for it would admit the possibility of two or three classes being held at the same hour, provided only that their several matters of study should belong to different seasons of pupilage ; for instance, a class of chemistry might be held at the same hour with one of surgery ; or a class of botany at the hour of hospital-practice ; on a presumption, that the subjects so paired, are incompatible for any single student, in one and the same year.

Let me now, Sir, solicit your indulgence, while I submit in a compressed and connected form, as an aggregate of the modifications, I have suggested in our curriculum, a scheme of study and discipline, which I earnestly believe would provide for the public the largest number of efficient medical advisers. It comprises the following points :

I. It would make the completion of eighteen years of age, and the attainment of certain preparatory *knowledge*, the indispensable conditions for a candidate's admissibility to the classes of technical study in a medical school.

His preliminary instruction should be tested by a *pass-examination* in the facts and philosophy of the Natural Sciences, to a certain defined extent ; and should embrace an acquaintance with the principles of reasoning, with rudimentary mechanics, and with the definitions and axioms

to disease—the science of life, variously operant, but ever single ; while for the student advancing to practice, pathology becomes separate, and special, and multiform ; for disease has to be viewed in the detailed consideration of its numberless phenomena, in so far as these may guide the judgment of the practitioner in ministering the resources of his art. On the one hand, sciential inter-dependence and affinity ; on the other, practical application, and knowledge passing into act ; here, to elaborate the elements of science in their purest form ; there, to give them the sign and stamp of currency : so, it seems to me, should the earlier and the later studies of medicine have their respective tendencies expressed, so be related in harmonious contrast.

of geometry, so far as these bear on the main subjects of the examination.

A voluntary competition for *mathematical* and for *classical* honours should also be invited, and the prize-man in each contest (if of sufficient merit) should be admitted to the medical school at a reduced entrance-fee (or gratuitously) with the title of mathematical or classical *scholar*.

II. A *division of each school* into two grades or departments, each having, as far as may be, its *scope of study*, its *arrangement of subjects*, and its *mode of teaching*, adapted to the more or less advanced knowledge of those trained in it.

(1.) The discipline of the *junior* department should extend through a period of fifteen months; and not only should frequency of formal examinations, and a general tone of indirect, or catechetical, teaching distinguish it, but the student's promotion should be made contingent on his proficiency in its curriculum. *Descriptive anatomy* (including dissections); *elementary biology*, as the study of life in the general history of its healthy and morbid manifestations, (elements of structural anatomy, physiology, and pathology); *general therapeutics*,—or so much of the science of medicine as is common to the physician and surgeon, either divested of speciality, or admitting it only for illustration,—with a classification of remedial agents, an account of their modes of operation and their usual employment in practice: these should be the chief studies of the period, and (during the summer which would close it) there might be added an attendance on the out-patient practice of a hospital or dispensary, in order to acquire, under proper teaching, the method of conducting examinations, of studying symptoms, and of using the minor surgical appliances (*petite chirurgie*): to the same summer might likewise belong the study of practical pharmacy, and of chemical manipulations.

2. The second period of studentship, being that of discipline for professional practice, should be cultivated in this

view with strict and exclusive care: during its earlier half, three or four hours in the middle of each day should be given to visiting the wards of a hospital, and to attending the clinical lectures, and the demonstrations of morbid anatomy, which illustrate its practice; and the anatomical studies of the forenoon should take, as much as possible, the form of surgical anatomy. Thus the systematic lectures on the three branches of practice would fall (as indeed they ought to fall, for the student can ill afford at this period to exhaust daylight in the lecture-room) to the evening; but I am inclined to believe that if clinical teaching were constant and efficient, (as in some foreign schools, where it resolves itself into a familiar commentary on each day's visit) it would form an advantageous substitute for a considerable portion of the systematic courses.

During its *later months*, the same general plan should be followed, with a care to excite the student's personal interest in practice, and to prepare him for future responsibility; the opportunity of attending cases, under proper direction, should be afforded him, and a registry of them required at his hands. Closer observation of particular classes of disease (surgical and medical *specialities*) should be encouraged, and *theses* on them invited by the clinical teachers. Courses of lectures on the higher *biology* (with more abundant adduction of comparative anatomy and of embryology, than belonged to the earliest view of the same subject) and on *Forensic Medicine* and *Hygiene*, would likewise engage the student's attention, and complete the circle of his regulated academic training.

III. It should be a leading object, and a characteristic feature, in the whole scheme of instruction, to *superintend* the pupil's course; not only to inform him, but to ascertain his progress; not only to sketch his route, but to direct its detail. Thus, when his term of pupilage is accomplished, the teachers of his school can certify for him that he "has

completed to their satisfaction the course of study and discipline, which they recommend :” and I conceive that such credentials, from a well-constituted school, might with advantage be substituted for the more detailed, but far less comprehensive, certificates of the present system.

Thus far the education should be common to all branches of the profession, and indifferent to any special tendency : for, not till this cycle is accomplished, and a sound knowledge of general practice obtained, can any distinction of study be advised, with a view to the pupil’s ulterior destination. Whether he propose confining his future practice to Medicine, or to Surgery, or to Obstetrics,—thus far his culture and proficiency should be equal in all : whatever be the intended inclination of his further progress, thus far it should be impartial : let him *first* be an able and well-proportioned *general practitioner*, *then* specialise his studies : it is not by forswearing medical knowledge, but by accumulating surgical experience,—it is not by the absence of surgery, but by eminent skill in medicine, that a Surgeon and a Physician respectively distinguish themselves.

The view, which I have taken of the constitution of Medical Schools, now suggests a brief allusion to the nature of their dependence on the professional *examining boards*. These bodies, by their discretionary power of rejecting credentials of study, virtually direct education. The only fact in regard of this useful supervision, to which I propose referring, respects the form assumed by *certificates of instruction*.

Before alluding to these, I would take occasion to express a hope, scarcely less founded than a conviction, that the promised changes in our Corporations will extend to establishing a *single centre* of educational government : for,—whatever difference of opinion may prevail on the expediency of submitting candidates to a double examination,—no doubt can exist of the extreme inconvenience of a plan

which obliges professional teaching to advance under different, perhaps opposite, impulses. The superior advantages of a system, under which the representatives of the three branches of our profession, acting in acknowledged concert, might dictate some single standard of ordinary education; and severally exercise a power of special jurisdiction, only in regulating the concerns, and awarding the titular distinctions, of their particular classes,—can hardly be overlooked.

The present *certificate-system* has, I fear, fallen some degrees below the *zero* of unsuccess. Its most sanguine defenders plead no higher merit in its favour, than its power to enforce bodily attendance; and this power, just in proportion to its cogency in constraining an involuntary presence, would be as disheartening to the zealous teacher, as irksome to the indifferent pupil; it might augment the audience by a few, each of whom would circumfuse an atmosphere of sleepiness, or maintain an under-current of whispered gossip. It is only free from this censure, in case of being utterly powerless; and so it has indeed become, in the notorious laxity of its administration. To loosen the reins of discipline bespeaks popularity, since students will most densely flock, where the bugbear of compulsion is not; hence must obviously originate an identification of profit with wrong-doing; the discouragement of wholesome strictness; rivalry in indulgence; a race of relaxation; a lure to dereliction of duty. It is not in the scope of the certificates to record more than the *opportunities*, which the student has enjoyed, for acquiring scientific information; these are abundantly specified; but his industry, character, and attainments pass unmentioned. While, however, as regards their testimony to a pupil's education, they are little more than the recognised *receipts* for entrance-money, as paid at a particular school,—they constitute, by their extremely circumstantial form, a close restriction to the teacher; and bind

him to an exact line, from which he might occasionally swerve with advantage. There might be some deviations from the precise routine of the schedule,—some endeavours to realise a completer scheme of instruction, or to ensure more effective teaching, which the examining bodies would be not loath to sanction. Moreover, these credentials are the pupil's *sole* (no less than indispensable) passports for examination; they conduct him to that ordeal, which is the single barrier, dividing him from an ostensible rank, and from privileges, and from grave responsibilities. The trial in question too,—since it concerns the bare *sufficiency* for practice,—must of course place its standard in a *minimum*, and acknowledge the doctrine, (which Hooker* states of another profession,) that “besides eminent and competent knowledge, it is right to descend to a lower step, receiving knowledge in that degree which is but tolerable;” it likewise appears, as is universally the case with pass-examinations, to fix and to apply its standard in a spirit of some leniency.

On all these grounds it seems desirable, that *certificates* should rather be vouchers of application and of attainment, than histories of opportunity; and that they should, in some degree, pledge the teachers, who sign them, to the candidate's eligibility. Thus, if the teaching in a school were vigilant and actual, as it should be,—if it verily and *bonâ fide* executed, what it professes to execute,—if it recognized the duty of ascertaining the acquirements of its *alumni*,—there can be no doubt that a testimonial, to the effect of the subjoined form,† would bear stronger evidence of adequate instruction than the present voluminous instrument can afford. It is of course obvious, that the examining body would require an

* Eccles. Pol. b. v. c. 81.

† We certify, that Mr. — has attended our School of Medicine [partially or entirely] during — years, and has completed in it, to our satisfaction, the course of study, which we recommend. We accordingly beg leave to present him for examination.

(Signed by the Teachers, or by the Dean of the Faculty.)

exact knowledge of the course, recommended in each particular school, and would need to exercise a careful discretion in conceding the licence of *general certification* ; but,—due regard being had to the constitution, character, and stability of the schools so privileged,—I cannot suppose much likelihood of abuse. Public opinion would render honest exertion the interest of all ; and the examining body would hold in its hands, as an ultimate safeguard for professional character, the power of withholding recognition. An annual announcement of the number of students, *recommended* for examination by each school, and of the *proportion rejected* by the examining body, would enable the public, by comparing the averages thus expressed, to appreciate the degree, in which each establishment had fulfilled its implied pledge, to furnish adequate instruction.

So much has been both said and written, within the last few years, on the expediency of conforming Medical Schools to a *Collegiate system*, and the notion has been so mingled in all recent plans for remodelling our scheme of education, that I am induced, Sir, to trouble you with a few remarks on it. And,—as some misunderstanding seems to have arisen in the vague signification, which common speech permits in the term, College,—I should first observe, that where (as in speaking of a *Collegiate Model* with reference to education) any *distinctive* import is given to the word, I understand it to signify a *chartered school of universal study, with domestic incorporation of its members* :—*chartered*, as the pledge of its permanence beyond a particular generation ;—for *universal study*, as opposed to the singular and special culture of any one craft, or science ;—with *domestic incorporation*, as the means of more than intellectual discipline, and as a security for the interests of morality and religion. This conception of a College, in its distinctive features of excellence, not only eminently includes those seats of learning, the Universities of Oxford and Cambridge, which,—in so august

a sense, and in behoof of countless historical and present associations,—are well named *National*; but it also, I would hope, is not far removed from that ideal standard of a school, which, more than any actual pattern, should be contemplated as the paradigm of construction. Without questioning other appropriations of the word,—and assuredly not grudging its titular dignity to any learned association, where Science labours in subservience to humanity,—I shall proceed, according to my own conception of a *Collegiate Model*, to examine briefly, how far this should be imitated, and how far it can be attained, in respect of Medical Education.

(1.) As regards the means of *intellectual* training, I believe the association of medicine in the circle of collegiate instruction to be of extreme advantage to the Profession; so much so, that I confidently anticipate a time, when medical schools will only exist, as departments of colleges,*—when physiology and medicine will be only taught beneath the same roof with literature, and history, and ethics. And my belief rests not only on general considerations of utility and convenience, but especially binds itself with my conviction of the need for preliminary education. For the time cannot be far distant, when changes in the present system of medical apprenticeship must suggest—no less to society at large, than to those more nearly interested—the grave problem, which that system so long slurred over with the semblance of an expedient answer,—this problem, viz.; what is to be the state and occupation of youth, from the period of leaving school to that of commencing professional study? It would indeed be a rash reply, that should seek the solution by proposing an immediate transference from the school to the dissecting-room; and, barring this answer, the vital necessity of providing for those intermediate years the means

* Of colleges, I need scarcely add, which would make hospitals their theatre of practical observation.

and method of transitional study, can be satisfied by no other arrangement, than that mooted. For only in institutions where (as in our metropolitan colleges) the natural sciences are taught in fellowship with other learning, can there be full opportunity for the special preparation, which I have elsewhere sketched, with facilities for maturing the studies of boyhood, and for adding to them such other accomplishments, as may lie within the student's tastes or ambition : only in such institutions can the scheme of intellectual discipline be complete, coherent, and progressive. Hence, in reflecting on the claims for this discipline, which every succeeding race of medical students must, more and more cogently, press,—and on the immense interest, direct and indirect, which will induce society to answer the appeal,—and on the only conditions, as I believe, by which the exigency can be met;—I scarcely doubt, that continued striving will tend toward Collegiate Institutions; and that to such efforts the metropolis will ultimately owe various schools of *universal study*, in which medical teaching (almost necessarily metropolitan) shall have been the nucleus, and shall have gathered round itself the sister-sciences, for its own vitality and perfection.

(2.) In what pertains to *incorporative domestication*, as a part of the collegiate system, two very different opinions are expressed; for, on the one hand, it is interpreted by its failure,—on the other, by its conceivable success. And, in the latter view, its adoption cannot but be the object of enthusiastic desire; for, virtually and completely to realise and mature that good, which the *idea* of a college includes within itself, as a germ and latent possibility, would indeed be the consummation of all hopes and of all labors. It would present a school under the endearing aspect of a family; a brotherhood of stirring life, and warm affections, and growing intellect, of reciprocated information, of rivalry mitigated by kindness; teachers and scholars in joint household; on

the one hand, authority,—enforced, as alone it efficiently can be, by the single sanction of one common faith, and manifested rather as an influence and assimilative energy, than as prohibition or command; on the other, duty,—so anticipating by habit the scarce-felt rein of discipline, as to simulate the alacrity of impulse. Such an idea can, alas! never be realized, except in faintest portraiture; but it would be vain to question the actual benefits, or to gainsay the social promise of those institutions, which, in form at least, approach the fairness of the pattern. For, although it can never be forgotten, that the great aim of moral education is to supersede the necessity for extrinsic government, by substituting for outward coercion the inward rules and motives of conscience,—yet will it not be denied, that there is an age, when discreet guidance may aptly illustrate and accomplish the inculcation of sound principles, and when respectful regard to others' opinion may usefully influence the conduct and demeanour. Such I apprehend to be the spirit of our *University* discipline, and the explanation of its advantages; it seeks not to coerce by strong compulsion the unruly and unpersuaded will, or to scrutinise individual character, or to hoop the dissimilar thousands of its vast incorporation within the iron mechanism of circumstantial rule and inspection; no:—furthering its aim by moral education, and strengthening itself by appeals to religious sanction, it bids its *alumni* advance “in the steps before trodden by the great and good men, whose names are their precious inheritance;” and vitalises a government, which would else appear but the restriction of seemliness, by ever instilling and impressing the doctrine and spirit of its enactments. Such too, I presume, is the general intention of those, who now recommend the collegiate domestication of medical students: and with them I certainly believe, that this adaptation of university discipline to our metropolitan schools of medicine (due allowance being made for many important differences) is very

desirable ; and that, in the mere matter of furnishing a respectable and well-ordered home to students, who, in many cases, are quite isclated from their family-connexions, it would largely contribute toward removing from the class those exaggerated reproaches of misconduct, which have not always been destitute of plausibility.* The subject is of such wide limits, embraces such manifold considerations, and has withal such powerful claims of interest, that I should vainly strive to do it justice, within my prescribed bounds ; and am glad, in place of any farther reflections, to make reference to a work, in which the matter is amply and detailedly discussed.†

The review of medical education, for which, Sir, I have presumed to seek your attention, being at length, and to my best ability, completed, I would once more appeal to the extreme importance of the topic, as my apology and excuse for so long dwelling on it. The opinions, I advance, have not been lightly conceived ; by some of them I am so strongly impressed, as to consider their advocacy little less than a duty. Such points I have desired to argue clearly and provingly ; if I have failed in my endeavours, it has

* The possibility of thus applying to our medical schools the principles of collegiate discipline and domestication, is of course very limited ; and the advantages of the system would therefore require to be economised. I think there would be an especial propriety, where the power exists, in so extending arrangements of the nature referred to, that colleges could receive within their walls *every student* at the time of his matriculation, with a view to retain him under tutelary discipline for the *first year* of his professional studies. Not only would there be obvious advantage in this plan, from its more particular bearing on the period of life, when habits, tastes and feelings just cluster and mould themselves to the determinate outline of future character ; but likewise and exceedingly, as regards the technical instruction of the time, it would facilitate that supervision and frequent assistance of study, the expediency of which I have already endeavoured to show.

† A Letter to the Principal of King's College, on the Education of Medical Students, by R. B. Todd, M.D., Professor of Physiology in the College ; whose anticipation (in this work and in the British Magazine for 1837) of many of the results, at which I have arrived, I am equally flattered to have found, and happy to acknowledge.

been through inability of pleading, not in weakness of conviction.

I may anticipate an objection to the scheme submitted, and especially to that part of it, which urges the necessity for preliminary discipline, made on the ground of practical inexpediency, and in fear of diminishing the afflux of candidates for the Profession. The apprehension is groundless: the public demand for medical practitioners may vary; but here, as with all other matters of social commodity, the supply will assuredly meet it. Should the numbers flocking to the Profession be over-abundant, I can conceive no better check, than one which,—by requiring preparation, study, and character, as conditions for entrance,—may repel the unprepared, the idle, the worthless; should the demand of the country preponderate, should a growing population at home, or armies and stretching colonies abroad, require an increase of the Profession, and attract men accordingly with hopes of place, or fame, or livelihood,—such a call would indeed draw aspirants through a fiercer ordeal, than the proposed preparation for their future studies. Nor should I omit to notice, that any appearance, which the plan may present, like threatening to multiply the labors of studentship, is fallacious, or unreal; it would methodise, simplify, and facilitate the student's task; it would throw into the separate period of preliminary education much that, by the present mistaken commixture, impedes—rather than promotes—the successful pursuit of Medicine, and would indirectly, but importantly, extend the duration of scientific discipline, by converting to its object the misused years of apprenticeship.

In professional polity, no more than in grander constitutions,—are justice and true expediency ever found asunder: that, which in the higher sense is expedient, in each subordinate one is right; nor is the standard less trustworthy in its converse application. The ultimate aim of our Pro-

fession is usefulness: by the completest efficiency of its distributive functions to subserve the needs of society, by thoughtful observation to augment the heirloom of traditional knowledge, or to develop new laws in Nature,—these are its utilities: their pursuit is its duty,—their attainment its good. The encouragement of such discipline, as may tend hitherward, is no less an obligation on the Profession, than it is an interest with the Public; and I am assured that, if the scheme here suggested have this tendency, no selfish considerations, or unfounded fear, will prevent its adoption by those, whose approval and advocacy have far weightier influence than mine.

I have the honor, to be, Sir,

Your obedient and faithful servant,

JOHN SIMON.

October, 1842,

King's College.

TO THE PRESIDENT OF THE
ROYAL COLLEGE OF SURGEONS.

POSTSCRIPT.

Any endeavour to analyse the writings of others, or to examine with becoming care, how much has been already attempted in behalf of Medical Education by individual, or by corporate exertions, would have carried me far beyond the limits of the preceding Letter. The various medical periodicals, among which I may especially cite the “British and Foreign Quarterly Review,” conducted by Dr. Forbes,—have at different times contained sound observations on the subject. Mr. North, the chaplain to St. George’s Hospital, has recently addressed a letter to Sir B. Brodie on the application of Collegiate discipline to Medical schools; and Dr. Todd, in the pamphlet already mentioned, and some years earlier, in the “British Magazine,” has considered the same point. I cannot refrain, however, from making especial reference to the works of my honored friend, Mr. Green; who has illustrated all topics of Medical polity with consummate judgment and mastery. It would be ill-suited to this occasion, should I allude, except most glancingly, to Mr. Green’s other labors,—to his profound æsthetical Discourses before the Royal Academy, to his magnificent Oration and Essays concerning vital dynamics,—or to his most high character; and I now for a moment adduce them, only because—in my belief—they at once prove and constitute his eminent qualifications and ability for representing, as he has done, the functions, ideal form, and ultimate aim of the Profession, and the conditions of its excellence and efficiency. The works, to which I particularly refer, are the following: (1.) An Address, delivered at the commencement of the Medical Session in King’s College, 1832; (2.) Suggestions respecting Medical Reform; and (3.) The Touchstone of Medical Reform. Their tone of earnest philosophy,—ever appealing beyond the local, ephemeral and relative, to all which is ultimate and absolute,—(while it reminds one of that ennobling charge, which Tully wrote against the least time-serving of his countrymen—*dicat tanquam in Platonis republicâ, non tanquam in facie Romuli, sententiam*) raises them far above the sphere of temporary and occasional interests, into the permanent dignity of a system of professional ethics.

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